CLAIMS

1 Method for the preparation of a polymeric matrix having particulate material entrapped in said matrix in which the polymeric matrix is porous and the particles are well accessible and maintain their functionality after preparation, said method comprising providing a mixture of polymeric material and particulate material in a solvent for the polymeric material and extruding said mixture into a fibre and solidify said fibre by a two-step phase inversion process.

2 Method according to claim 1 in which the mixture that is extruded comprises 0.5% to 50% by weight polymeric material and 1% to 95% by weight particulate material, the remainder being solvent.

3 Method according to claim 1 or 2 in which the solvent used is selected from N-methyl-pyrrolidone(NMP), dimethyl acetamide (DMAc), dimethylformamide (DMF), dimethylsulfoxide (DMSO), tetrahydrofurane (THF), ε-caprolactam or 4-butyrolactone.

4 Method according to any of the preceding claims in which the solvent in the mixture of polymeric material and particulate material is replaced by 0.01-50% by weight of one or more additives and/or non-solvents.

5 Method according to claim 4 in which the additives are selected from octanol, polyvinylpyrrolidone (PVP), polyethylene glycol (PEG), and glycerol.

6 Method according to any of the preceding claims in which the fibre comprises 5-95% by weight of polymeric material and 5-95% by weight of particulate material.

7 Method according to any of the preceding claims in which the fibre comprises about 60-95% by weight of particulate material.

8 Method according to any of the preceding claims in which the two-step phase inversion process involves the use of a spinneret, which allows for the controlled flow of a liquid, a vapor or a gas as an exterior medium of the fibre.

9 Method according to claim 8 in which the exterior medium is a liquid mixture of solvent and nonsolvent for the polymer.

10 Method according to claim 8 in which the exterior medium is a gas stream comprising a nonsolvent for the polymer.

11 Method according to claim 9 or claim 10 in which the nonsolvent is water or water vapor.

12 Method according to any of claims 8-11 in which a triple layer spinneret is used.

13 Method according to any of the preceding claims in which the polymeric material is selected from polyethersulphone, polysulfone, polyethylene-co-vinylalcohol, polyvinylidenefluoride and cellulose acetate.

14 Method according to any of the preceding claims in which the particulate material in the porous matrix is altered in its function by a subsequent functionalisation.

15 Method according to any of the preceding claims in which the particulate material is adsorptive particulate material.

16 Method according to claim 16 in which the adsorptive particulate material is an ion exchange resin.

17 Method according to claim 16 in which the adsorptive particulate material is hydrophobic in nature.

18 Method according to any of the preceding claims in which the particulate material is used for size exclusion.

19 Method according to any of the preceding claims in which the particulate material is used for separation of isomeric compounds.

20 Method according to any of the preceding claims in which the particulate material is used for separation of optically active compounds.

21 Method according to any of the preceding claims in which the particulate material is used in reversed phase chromatography.

22 Method according any of the preceding claims in which the particulate material is functionalised, or is subsequently functionalised, with a catalyst or a biocatalyst.

23 Method according to any of the preceding claims in which the particulate material is active carbon.

24 Method according to any of the preceding claims in which for mechanical enforcement a thread, wire, yarn or the like of any material is co-extruded with the fibre.

25 Method according to any of the preceding claims which further comprises heat treatment.

26 Method for controlling porosity of a polymeric matrix having particulate material entrapped in said matrix by varying the size of the particulate material in the method according to claim 1.

27 Method for controlling porosity of a polymeric matrix having particulate material entrapped in said matrix by varying the content of the particulate material in the method according to claim 1.

28 Method for controlling porosity of a polymeric matrix having particulate material entrapped in said matrix by varying the functionality of the particulate material in the method according to claim 1.

29 Fibre obtainable by the method according to any of the preceding claims.

30 Module comprising fibre according to claim 29 said module comprising a spirally wound fibre mat packed inside a housing, a bundle of fibers packed longitudinally inside a housing, a transverse flow fiber configuration inside a housing, fibre wounded as a spool in parallel or cross-over mode inside a housing or any other orderly or disorderly fibre packing configuration inside a housing.

31 Body comprising a fibre, optionally in a finely divided form, according to claim 29.

32 Use of a fibre according to claim 29 or a module according to claim 30 or a body according to claim 31 for the adsorption and/or purification of compounds from a mixture of coumpounds or a reaction mixture, in particular from a fermentation broth, tissue broth, plant both or cell broth in general.

33 Use of a fibre according to claim 29 or a module according to claim 30 or a body according to claim 31 for the immobilisation of a catalyst in a reaction mixture.

34 Use of a fibre according to claim 29 or a module according to claim 30 or a body according to claim 31 for the immobilisation of a chemical or biological compound.